

REMARKS

In the Office Action mailed July 16, 2007, the Examiner objected to the drawings under 37 C.F.R. §1.83(a) because the “valve seat” limitation was not shown in the drawings as filed, and needs to be shown or that feature cancelled from the claims. Applicant is tendering herewith a Replacement Sheet for Figure 1, in which a valve seat is illustrated. No new matter is believed to have been added.

Also in the Office Action mailed July 16, 2007, the Examiner rejected claim 7 and 9 under 35 U.S.C. §103(a) as being unpatentable over a U.S. Patent to Bock in view of a U.S. Patent to Akkerman. Claim 8 was rejected under 35 U.S.C. §103(a) as being unpatentable over Bock in view of Akkerman and further in view of a U.S. Patent to Jones et al. Lastly, claims 10-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bock in view of Akkerman and further in view of a U.S. Patent to Hutchins. For the reasons that follow, Applicant traverses each of these grounds for rejecting the claims of the present Application.

Bock teaches a linear actuator having a screw thread that is not reversible, since the screw thread is not reversible in the sense that when an axial force is acting on the screw thread it does not rotate in view of the friction that is typical for conventional screw threads in such actuators. The reason for the non reversibility of the screw thread in Bock has already been discussed in Applicant’s previous submissions.

Akkerman discloses a linear actuator that is reversible such that when power is cut an axial force on the axis displaces it to a fail safe position. The reversibility of the system results from the ball nut screw mechanism which, in view of its extremely low friction due to rolling engagement of balls in helical grooves in both the screw and the rotor (nut), ensures

reversibility of the system for the fail safe function. Such ball nut screw systems are inherently reversible.

Therefore, should the ordinarily skilled person faced with the teachings of Bock and Akkerman wish to realize a fail safe linear actuator, according to the teachings in Akkerman he would implement the ball nut screw system and avoid the screw-thread means of Bock.

Akkerman thus clearly teaches in the opposite direction, since it would clearly discourage the ordinarily skilled person from even contemplating the use of complementary screw threads in a reversible fail safe actuator. These references therefore clearly teach the ordinarily skilled person away from the invention as set forth in claim 7.

Moreover, neither Bock nor Akkerman disclose the feature “at least one thread arranged at an angle α relative to a plane orthogonal to the axial direction of motion of the threaded bolt, where $\tan(\alpha)$ is greater than the coefficient of friction μ between the threaded bolt and the rotatable member.” Therefore, Bock and Akkerman combined do not even disclose all the features of the invention as set forth in claim 7. Thus even if an ordinarily skilled person were to contemplate combining Akkerman and Bock as suggested in the Office Action, which is not admitted, he would not arrive at the invention as set forth in claim 7, since Akkerman and Bock combined do not disclose all the claimed features.

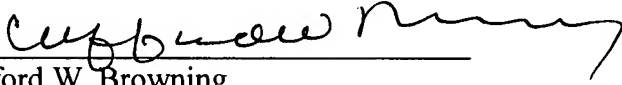
Applicant is moreover of the opinion that the arguments set forth in the Office action under section 4 rely on impermissible hindsight since there is no suggestion in Bock that a fail safe function for the actuator of Bock is desired or even useful – on the contrary, the actuator in Bock is for use in a throttle valve system for passages communicating with an intake manifold, whereby the valve merely controls air bypass around the intake valve plate 14 (see col 3 l 1-5 and fig. 1) such that the closed position of the valve plunger of the actuator

does not represent a fail-safe position. Since the closed plunger does not represent a fail-safe position, an ordinarily skilled person would have no motivation or reason, even considering Akkerman, to modify Bock in the direction of the Applicant's claimed invention.

Claims 8-12 are dependent on claim 7, and thus should also be allowable.

For all these foregoing reasons, Applicant respectfully requests consideration of the foregoing marks, reconsideration of the claims of the Application in light thereof, and allowance of all pending claims 7-12 over all the prior art of record.

Respectfully submitted,

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